REMARKS

Claims 1-9 and 11-21 are currently pending in the application. Claims 2, 3, 11-13 and 16-19 are withdrawn by the Examiner as being drawn to a nonelected invention. Claims 1, 7, 14-15 and 20-21 are amended. Claims 22-23 are newly added and are encompassed by the elected invention. The amendments find support in the specification and originally filed claims, and are designed to more clearly point out the claimed invention. No new matter is added.

Specifically support for newly added claims 22-23 is found throughout the specification including:

> "The mtClytin signal peptide is also suitable, as fusion peptide, for being used as a label, especially coupled to antibiotics, coupled to enzymes, coupled to receptors or coupled to ion channels and other proteins", paragraph 0049 of the instant specification published by the USPTO as 20070275377A1.

35 U.S.C. § 101

Claims 14, 15, 20 and 21 are rejected under 35 U.S.C. § 101 because the claimed recitation of a use, without setting forth any steps in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. § 101.

Applicant has amended claims 14, 15, 20 and 21 to remove the recitation of the phrase "The use of" from the instant claims, and reformatting the claims as product claims.

Support for these claims can be found throughout the specification, including the following paragraphs from the specification numbered according to its publication by the USPTO as 20070275377A1:

> "The invention relates to the use of the photoprotein-encoding nucleic acids according to the invention as marker genes or reporter genes, in particular for searching for pharmacological active compounds and for diagnostics". paragraph 0101 of the instant specification published by the USPTO as 20070275377A1

> "The invention relates to the use of the photoproteins according to the invention or of a photoprotein-encoding nucleic acid according to the

invention as labels or reporters or as a marker gene or reporter gene", paragraph 0102 of the instant specification published by the USPTO as 20070275377A1.

"The invention relates to the use of the nucleic acid depicted in SEQ ID NO: 1 as a marker gene or reporter gene, in particular for searching for pharmacological active compounds and diagnostics", paragraph 0104 of the instant specification published by the USPTO as 20070275377A1.

"In the case of what are termed translation fusions, the protein encoded by the cloned-in foreign gene is expressed, together with another protein which can be detected readily, as a hybrid protein. The 5' and 3' control signals which are required for the expression, including the start codon and, possibly, a part of the sequences encoding the N-terminal regions of the hybrid protein to be formed, originate from the vector. The additional inserted protein moiety not only in many cases stabilizes the protein, which is encoded by the cloned-in foreign gene, against breakdown by cellular proteases; it can also be used for detecting and isolating the hybrid protein which is formed. The expression can take place either transiently or stably. Suitable host organisms are bacteria, yeasts, viruses or eukaryotic systems", paragraph 0151 of the instant specification published by the USPTO as 20070275377A1.

"2. Reporter genes. The products of reporter genes are used in genetic manipulation as fused or unfused indicators. The commonest reporter genes include beta-galactosidase (Alam et al., 1990), alkaline phosphatase (Yang et al., 1997; Cullen et al., 1992), and luciferases and other photoproteins (Shinomura, 1985; Phillips G N, 1997; Snowdowne et al., 1984)", paragraph 0014 of the instant specification published by the USPTO as 20070275377A1.

"The photoprotein mtClytin is suitable for being used as a label, especially coupled to antibiotics, coupled to enzymes, coupled to receptors or coupled to ion channels and other proteins", paragraph 0048 of the instant specification published by the USPTO as 20070275377A1.

Specifically, claim 14 recites the nucleic acid as claimed in claim 1, further comprising a nucleic acid encoding a polypeptide other than that encoded by the nucleic acid of claim 1, wherein a fusion gene is formed and wherein said fusion gene functions as a marker gene or reporter gene, and finds support in the specification in at least paragraphs 101, 104, 151 and 14 as listed above.

Claim 15 recites a photoprotein polypeptide encoded by the fusion gene of claim 14, wherein said photoprotein polypeptide functions as a label or reporter, and finds support in the specification in at least paragraphs 102 and 151 as listed above.

Claim 20 recites the polypeptide as claimed in claim 8, wherein said polypeptide functions as a reporter protein in searching for pharmacologically active compounds, and finds support in the specification in at least paragraphs 101, 104, 151 and 14 as listed above.

Claim 21 recites the nucleic acid as claimed in claim 1, wherein said nucleic acid functions as a reporter gene in searching for pharmacologically active compounds, and finds support in the specification in at least paragraphs 101, 102 and 151 as listed above.

In light of the amendments to the instant claims and above remarks, Applicant respectfully requests reconsideration and withdrawal of the rejection.

35 U.S.C. § 112, 2nd Paragraph- Indefiniteness

Claims 1, 4-9, 14, 15, 20 and 21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Specifically, the office action indicates that the recitation of "stringent" in claim 1 is indefinite because stringent conditions are not set forth in the claims or defined in the specification..

Applicant traverses. The specification discloses the specific conditions referenced by the word "stringent" as follows:

> "A stringent hybridization of nucleic acid molecules can be carried out, for example, in an aqueous solution comprising 0.2 x SSC (1 x standard saline citrate=150 mM NaCl, 15 mM trisodium citrate) at 68°C (Sambrook et al., 1989)", Paragraph 0087 of the instant specification published as US 20070275377A1

The above paragraph illustrates that the specification provides a detailed description of stringent conditions. Because the specification discloses a detailed description of stringent

conditions which would be understood and performed easily by one of skill in the art, Applicant contends the recitation of "stringent" in claim 1 with respect to hybridization conditions is not indefinite.

Further, the Office action indicates that the recitation of a degenerate code of such a nucleic acid, as recited in for example claim 1(d), is indefinite since one can not know what the degenerate code of an unknown nucleic acid may be. Applicant traverses on the basis that one of skill would know what sequences are encompassed by the instant claims given the explicit definition of the term "stringent" with respect to the recited hybridization conditions disclosed in the instant specification.

The Office action indicates that the recitation of the term "homology" is indefinite since it is a qualitative term. Applicant notes that the specification discloses that the degree of homology was determined by the Blast method of Altschul et al. (1997) in paragraph 28 of the instant specification as published by the USPTO as 20070275377A1, and discloses in paragraph 0234 the complete citation for the Altschul et al. reference, as Stephen F., Thomas L. Madden, Alejandro A. Schaffer, Jinghui Zhang, Zheng Zhang, Webb Miller, and David J. Lipman (1997); Gapped BLAST and PSI-BLAST: a new generation of protein database search programs; Nucleic Acids Res. 25:3389-3402

Because the Altschul et al. reference discloses methods regarding the determination of percent homology that are able to be understood and performed easily by one of skill in the art, Applicant contends that one of skill would be able to easily ascertain what 95% or 65% homology means using the disclosed method.

In light of the amendments to these "stringent" in claim 1 remarks, Applicant respectfully requests reconsideration and withdrawal of the rejection.

35 U.S.C. § 102

Claims 1, 4-9, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Inouye et al (1993); Cloning and sequence analysis of cDNA for the Ca^{2+} activated photoprotein, clytin. FEBS 315(3):343-346.

Inouye teaches a nucleic acid encoding cylctin which shares 50.9% identity with SEQ ID NO:1 and 77.5% identity with SEQ ID NO:2, a vector comprising said sequence, and an oligonucleotide of at least 10 consecutive nucleotides of SEQ ID NO:1.

Applicant respectfully traverses on the grounds that Inouye et al. does not teach a nucleic acid molecule with at least 65% homology with SEQ ID NO:1 as determined by the disclosed method of Altschul et al. (1997) discussed above, and therefore is not anticipatory.

Applicant has amended claim 7 to add the further limitation that the oligonucleotide of at least 10 consecutive nucleotides that specifically hybridizes to the nucleic acid molecule as claimed in claim 1, thereby obviating the instant rejection.

The Examiner has included Claims 1(e) and 1(f) in the rejection due to the asserted ambiguity in the definition of "homology", asserting that one would be unable to determine which parts are homologous. However, Applicant has clarified that the percent homology is determined using the disclosed method of Altschul et al. (1997) and thus Applicant contends there is no ambiguity in determining the percent homology. Further, Applicant has amended Claims 1(e) and 1(f) to recite that the homology to SEQ ID NO:1 is measured with respect to its full length, consistent with the method of Altschul et al. (1997).

In light of the amendments to the instant claims and above remarks, Applicant respectfully requests reconsideration and withdrawal of the rejection.

Conclusion

Applicant submits that all claims are allowable as written and respectfully requests early favorable action by the Examiner. If the Examiner believes that a telephone conversation with Applicant's attorney/agent would expedite prosecution of this application, the Examiner is cordially invited to call the undersigned attorney/agent of record.

No fee is believed due. However, should any fees be required to ensure consideration of this response, the Commissioner is authorized to charge Deposit Account 04-1105, Reference No. 83313(303989).

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Respectfully submitted,

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